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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,151	01/20/2004	Rolf Bruck	E-80109	5945

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EXAMINER

MERKLING, MATTHEW J

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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12/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/762,151

Applicant(s)

BRUCK ET AL.

Examiner

Matthew J. Merkling

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-32 is/are pending in the application.
- 4a) Of the above claim(s) 21-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/24/07 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Bruck et al. (US 6,040,064).

Regarding claims 1-3, Bruck discloses a honeycomb body (2), comprising:

a casing tube (6);

a honeycomb structure connected to said casing tube and defining an axial portion between said casing tube and said honeycomb structure (see Fig. 1) ;

an inner sleeve (34) at least partially surrounding said honeycomb structure (see Fig. 4);

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an outer sleeve (4) at least partially surrounding said honeycomb structure (see Fig. 4);

said inner and outer sleeves being disposed in said axial portion (see Fig. 1);

said sleeves, having structures (coils, wound in a spiral, col. 3 lines 58-61, or in the alternative, corrugations (5) in the sleeves, see Fig. 4) for compensation of changes in circumference of said honeycomb structure (wrapped in a coil, which allows expansion or contraction of circumference), said structures of said inner sleeve and said structures of said outer sleeve engaging one another (clearly indicated in Fig. 4) and adjacent structures of said sleeves bearing at least partially against one another (clearly indicated in Fig. 4), thereby defining a zone of friction between said inner sleeve and said outer sleeve (with two coil sleeves as depicted by Bruck, this is inherent) and impeding a relative movement (i.e. friction) of said sleeves in relation to one another; and

a plurality of joining locations (8, and areas where corrugations 5 contact alternatively projecting corrugations, as depicted in Fig. 10) adjacently interconnecting said honeycomb structure (see connection points in Fig. 4), said inner and outer sleeves and said casing tube to form an open spring/damper system from at least one of said sleeves (col. 5 lines 4-8 and col. 6 lines 4-10).

Regarding claim 5, Bruck further discloses corrugation structures in the sleeves (as discussed above) and the joining locations are spaced apart from one another (see Figs. 4 and 10).

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Lebold et al. (US 5,482,686).

Regarding claim 1, Lebold discloses a honeycomb body (18), comprising:

- a casing tube (14);
- a honeycomb structure connected to said casing tube and defining an axial portion between said casing tube and said honeycomb structure (see Fig. 3) ;
- an inner sleeve (26) at least partially surrounding said honeycomb structure (see Fig. 3);
- an outer sleeve (22) at least partially surrounding said honeycomb structure (see Fig. 3);
- said inner and outer sleeves being disposed in said axial portion (see Fig. 3);
- said sleeves, having structures (fibers, such as in a mat, col. 6 lines 28-40) for compensation of changes in circumference of said honeycomb structure (fiber mats, are not rigid and will allow flexibility), said structures of said inner sleeve and said structures of said outer sleeve engaging one another (clearly indicated in Fig. 3) and adjacent structures of said sleeves bearing at least partially against one another (fibers in a mat inherently bear against each other) thereby defining a zone of friction between said inner sleeve and said outer sleeve (two mats placed together inherently experience friction between the two) and impeding a relative movement (i.e. friction) of said sleeves in relation to one another; and
- a plurality of joining locations (as see in Fig. 3, honeycomb structures and mats are continuously (plurality) joined to/in contact with one another) adjacently interconnecting said honeycomb structure (see Fig. 3), said inner and

outer sleeves and said casing tube to form an open spring/damper system from at least one of said sleeves (mats are flexible, thus act as a damper, see abstract).

5. Claims 1-3, 6-15, 17, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ota et al. (US 5,486,338).

Regarding claim 1, Ota discloses

A honeycomb body (Fig. 2 (3)), comprising:

a casing tube (2);

a honeycomb structure (3) connected to said casing tube (2) and defining an axial portion (S) between said casing tube (2) and said honeycomb structure (3);

an inner sleeve (7) at least partially surrounding said honeycomb structure (3);

an outer sleeve (5) at least partially surrounding said honeycomb structure (3);

said inner (7) and outer (5) sleeves being disposed in said axial portion (Fig. 2); and

said sleeves (5) having structure for compensation of changes in circumference of the honeycomb structure (3) (col. 2 lines 45-59).

a plurality of joining locations (9a, 9b) adjacently interconnecting said honeycomb structure (3), said inner and outer sleeves and said casing tube to form an open spring/damper system from at least one of said sleeves (col.

4 lines 39-46). Ota further illustrates structures of sleeves (5, 7) engaging in one another and adjacent structures of said sleeves bearing at least partially against each other, thereby defining a zone of friction between said inner sleeve and said outer sleeve (inherently, if they are in contact with each other, as set forth above).

Regarding claim 2, Ota further discloses that the honeycomb structure (3) is technically joined to the casing tube (2) (col. 3 line 66- col. 4 line 12).

Regarding claim 3, Ota further discloses a sleeve (5) having structure for compensation of changes in circumference of the honeycomb structure (3) (col. 2 lines 45-59).

Regarding claim 6, Ota further illustrates the inner sleeve (7) connected to the honeycomb structure (3) over an entire circumference of said honeycomb structure (see Fig. 2).

Regarding claim 7, Ota further discloses that the inner sleeve (7) is welded to the honeycomb structure over the entire circumference (col. 4 lines 9-12).

Regarding claim 8, Ota further illustrates a plurality of joining locations (9a, 9b) including inner joining locations (9b) between inner (7) and outer (5) sleeves and outer joining locations (9a) between said outer sleeve (5) and casing tube (2), being distributed uniformly over a circumference of said honeycomb structure (3), and directly adjacent inner and outer joining locations are mutually offset in circumferential direction (see Fig. 2).

Regarding claim 9 and 10, Ota further discloses an example of the thickness of the inner sleeve as being 50 μ m (col. 5 line 50).

Regarding claim 11, Ota further clearly illustrates (Fig. 3) that the extent in circumferential direction of the joining locations (9a, 9b) is less than 30% of a circumference of said honeycomb structure (3).

Regarding claim 12, Ota further clearly illustrates (Fig. 3) that the extent in circumferential direction of the joining locations (9a, 9b) is less than 20% of a circumference of said honeycomb structure (3).

Regarding claim 13, Ota further illustrates the inner and outer joining locations (9a, 9b) are mutually offset (see Fig. 1) in the axial direction of a honeycomb structure.

Regarding claim 14, Ota further discloses the axial length of the honeycomb structure (3b) as 70mm (col. 5 lines 50-57) and the axial portion as 70mm (see Fig 1) with the honeycomb structure completely enclosed in the casing (2), or 100%.

Regarding claim 15, Ota further discloses sheet metal layer being structured to form channels through which gas can flow (col. 4 lines 15-17).

Regarding claim 17, Ota further discloses the joining locations and sealing structures close off the annular gap between said casing tube (2) and said honeycomb structure (3) (See fig. 1 and 2).

Regarding claim 18, Ota further illustrates one of the inner sleeve (7) and outer sleeve (5) as being mutually axially spaced apart.

Regarding claim 20, Ota discloses

A catalyst carrier body (Fig. 2 (3)), comprising:

a casing tube (2);

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a honeycomb structure for carrying catalytic material for purifying an exhaust gas of an internal combustion engine (see title), a honeycomb structure (3) connected to said casing tube (2) and defining an axial portion (S) between said casing tube (2) and said honeycomb structure (3);

an inner sleeve (7) at least partially surrounding said honeycomb structure (3);

an outer sleeve (5) at least partially surrounding said honeycomb structure (3);

said inner (7) and outer (5) sleeves being disposed in said axial portion (Fig. 2); and

a plurality of joining locations (9a, 9b) adjacently interconnecting said honeycomb structure (3), said inner and outer sleeves and said casing tube to form an open spring/damper system from at least one of said sleeves (col. 4 lines 39-46). Ota further illustrates structures of sleeves (5, 7) engaging in one another and adjacent structures of said sleeves bearing at least partially against each other, thereby defining a zone of friction between said inner sleeve and said outer sleeve (inherently, if they are in contact with each other, as set forth above).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter

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sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 5,486,338).

Regarding claim 5, Ota, as discussed in claim 3 above, discloses all of the claim limitations in the first embodiment, but fails to teach the structures formed by corrugations in said sleeves.

Ota further discloses in another embodiment that the structure (compensation means) can consist of corrugated section in order to improve the buffer effect (col. 5 lines 7-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the cushion member sleeve of the first embodiment of Ota with the corrugated sleeve of another embodiment of Ota in order to improve the buffer effect.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 5,486,338) as applied to claim 15 above, and further in view of Yamada et al. (US 2001/0036427).

Regarding claim 16, Ota, as discussed in claim 15 above, discloses all of the claim limitations, but does not teach the channel density of at least 800 cpspi or a sheet metal thickness smaller than 0.025 mm.

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Yamada also discloses a honeycomb shaped catalyst carrier used for purifying exhaust gas.

Yamada teaches the channel density of 300-1200 cspi and the sheet metal thickness as low as 0.02-0.1 mm (paragraph 10). One skilled in the art would recognize that having a thinner sheet metal thickness and greater channel density allows for a high geometric catalyst surface, which allows for a significantly fast diffusion of exhaust pollutants (as is discussed in US 6,780,805, col. 7 lines 27-42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the high channel density of 1200 cspi and the low sheet metal thickness of 0.02mm of Yamada into the honeycomb structure of Ota in order to increase catalyst surface and allow for fast diffusion of exhaust pollutants.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 5,486,338) applied to claim 1 above, and further in view of Wieres (WO 97/15393).

Regarding claim 19, Ota, as discussed in claim 1 above, discloses all of the claim limitations, but fails to teach microstructure on one of the inner or outer sleeves.

Wieres also teaches a honeycomb structure used for purification of exhaust gas.

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Weires teaches a sleeve wrapped on the outside of the honeycomb structure (Fig. 1) that incorporates microstructures (5) in order to provide significant mechanical reinforcement of the thin metal sheet (2) (page 5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the microstructures of Wieres to the inner sleeve (7) of Ota in order to provide significant mechanical reinforcement to the sleeve.

Response to Arguments

10. Applicant's arguments with respect to claims 1-3 and 5-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



MJM



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SUPERVISORY PATENT EXAMINER